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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/500,823 | 02/10/2000 | Oren Marmur | Marmur=2 | 3103 |
| 1444 | 7590 | 08/09/2005 | EXAMINER | |
| BROWDY AND NEIMARK, P.L.L.C. 624 NINTH STREET, NW SUITE 300 WASHINGTON, DC 20001-5303 | | | PAYNE, DAVID C | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2638 | |

DATE MAILED: 08/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/500,823

Applicant(s)

MARMUR, OREN

Examiner

David C. Payne

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6, 8 and 10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 8 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 September 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 11 March 2005 have been fully considered but they are not persuasive. As will be shown below, contrary to applicant's claim, the Al-Salameh '820 reference does not teach away from the claimed invention.
2. Regarding applicant's assertion (remarks, p. 6, lines 2-7) "In clear contrast, and as will be explained in greater detail below, the '820 reference teaches making the necessary determination and switching to a protection path at a first location **and then not switching at a second location until a signal is detected on the protection path**" (emphasis added).

What the applicant fails to adequately summarize is that switching happens in two phases at both a first node and a second node. Figure 9, sequences the steps of fault detection and restoration on a link whether in a first node or second node. Specifically, step (905) initiates switching in either node when a LOS is detected as shown in Figure 4 (Phase 1, initiating restoration from failure from the EAST for Node 1). Indeed, Al-Salameh disclosed (col. 7 lines 22-29),

"Specifically, in response to detection of loss of optical signal from the east, i.e., no signal (noise) detected on optical input E, restoration is initiated by switch matrix 201 in response to switch control (SC) signals causing optical switch unit 302 to disconnect input E from output J and causing optical switch units 303 and 305 to connect input C to output M."

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In what will be denoted (Phase 2, completion of restoration from failure from the EAST for node 1) Figure 5 completes the operation by switching the protection paths, see Al-Salameh (col. 7 lines 56-65),

"The only difference is the connection effected by switch unit 302 in response to switch control (SC) signals to connect input G of the incoming optical protection transmission capacity (fiber) to output J. This connection is effected in response to detection in the node via optical monitor 206 (FIG. 2) of reception of an optical signal on input G and completes the restoration in the node from the failure to the east."

Similarly in Node 2 (from the West) restoration is initiated (Figure 6) and completed in (Figure 7). Case in point restoration is initiated in the second node (Phase 1 switching) when LOS is detected and only completes with signal detection on the protection link, see Al-Salameh (col. 8 lines 14-29),

"Specifically, in response to detection of loss of optical signal from the west, i.e., no signal (noise) detected on optical input H, restoration is initiated by switch matrix 201 in response to switch control (SC) signals causing optical switch unit 301 to disconnect input H from output I and causing optical switch units 303 and 304 to connect input B to output L. Input E continues to be connected via switch unit 302 to input J. Functionally, this operation of switch matrix 201 causes a copy of the optical signal that normally is supplied to output N of the optical service transmission capacity (fiber) to be sent in a direction away, i.e., to the east, from the transmission media or optical amplifier failure to the west causing the loss of signal via output L on the optical protection transmission capacity."

So it is clear from the cited passages that contrary to applicant's assertion (p.6 lines 16-18) "... corresponding switching that must take place in the second node ..., is performed only after the detection means of that second node is able to detect the arrival of traffic along the protection path." Indeed, switching happens after a LOS signal (Figure 9 step 905, Figure 6 (303) and (304)) and completes in (Figure 9 step 910, Figure 7 (301)) after detection of traffic along the protection path.

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3. Regarding applicant's assertion (remarks, p. 7 lines 1-4), "*In contradistinction to this method, by the method of the present invention the corresponding switch at the second node would be carried out **independently** at the second end of the link after having detected a LOS thereat*" (emphasis added).

The applicant's specification (page 10 lines 11-14) appears to contradict this statement.

"Such a switch **triggers** a LOS in LOS Detection unit 430, and **once this LOS is detected**, OPM 410 will switch too to a protection mode (Fig. 3D), ..." (emphasis added)

Thus the diverting of traffic at a first location (410 of Figure 3D) as claimed is only triggered after a LOS signal is detected (420 of Figure 3B) and switched (400 of Figure 3C) at a second location as claimed.

Thus the disclosed operation of the applicant's invention would appear to weaken the applicant's speculation of the switching time advantages of his invention. Namely, in both Al-Salameh and the instant application, completion of switching in the first node is dependent upon completion of switching in the second node. The only distinction being that completion of restoration in the first node in Al-Salameh is dependent upon sensing of a signal on the protection link whereas in the applicant's invention all switching takes place after LOS in the first node. However, as can be seen in Figure 3D of applicant's disclosure LOS detection is likely concurrent with protection channel sensing.

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4. In summary, applicant's claims for example in claim 1 "*... in the case that the total energy thus received does not exceed the pre-defined threshold, diverting the traffic transmission and reception at the second location to the corresponding second links;...*" One of ordinary skill in the art would understand that this condition has been met in the prior art. **Applicant has merely stated one condition but has not precluded additional steps as taken by Al-Salameh** for completion of restoration.

5. Finally, regarding the applicant's alleged distinction between a 'LOS' condition in Al-Salameh and detecting '*less than a predefined amount of energy*' as claimed, see (remarks page 9 lines 19-24 and page 10 lines 1-8). Thus the Al-Salameh passage as cited by the applicant:

"This 30:1 amplification factor is employed as a threshold for determining whether a LOS has occurred. Indeed, we have recognized that when a LOS has not occurred, the in-band signal level is approximately 60 times larger than the out-of-band signal level. When a LOS has occurred the in-band signal level is approximately 40 times as large as the out-of-band signal level", see Al-Salameh col. X lines X.

would be understood to one of ordinary skill in the art at the time of rejection as a ratio that is used to determine a threshold of acceptable signal level or predefined amount of energy, regardless if that level is termed a LOS.

6. Hence the rejection based on Al-Salameh is maintained.

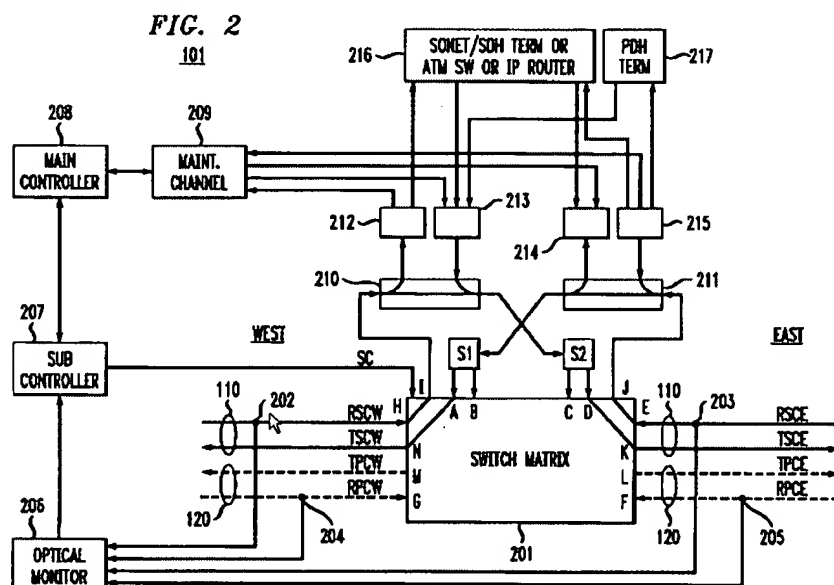
Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 2-4, 6, and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Al-Salameh US 6,262,820 B1 (Al-Salameh).



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Re claim 2,

A method for routing traffic to a protection channel in an optical communication network which comprises a plurality of telecommunication channels extending between first (*e.g.*, 1101 of Figure 11) and second locations (*e.g.*, 1104 of Figure 11), the telecommunication channels comprising a plurality of channels (*TSCW*, *TSCE* of Figure 2) for carrying traffic in normal operation mode from the first location to the second location and at least one protection channel (*TPCW*, *TPCE* of Figure 2) for carrying traffic in the event of a fault in at least one of the channels carrying traffic in normal operation mode, which method comprises the steps of: detecting a fault on at least one of the channels carrying traffic in normal operation mode, at the second location (*e.g.*, *col./line*: 2/25-45); switching at the second location the transmission and reception paths associated with said at least one failing channel to the at least one protection channel (*e.g.*, *col./line*: 10/23-35); detecting a fault on said at least one channel at the first location; and switching at the first location the transmission and reception paths associated with said at least one faulty channel to the at least one protection channel (*e.g.*, *col./line*: 10/23-35).

Re claim 3,

A method wherein said at least one protection channel is used for protecting at least one pre-designated channel out of the plurality of telecommunication channels (*e.g.*, *col./line*: 4/35-45; 6/20-30).

Re claim 4,

A method wherein said at least one protection channel is used for protecting a plurality of telecommunication channels (*e.g.*, *col./line*: 4/35-45; 6/20-30).

Re claim 6,

An optical communication system comprising a plurality of telecommunication channels extending between first (*e.g.*, 1101 of Figure 11) and second locations (*e.g.*, 1104 of Figure 11), the channels

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comprising a plurality of forward channels for carrying traffic in normal operating mode from the first location to the second location (*TSCW, TSCE of Figure 2*), at least one protection link for carrying the traffic of at least one of said forward channels in the event of fault in said at least one forward channel (*TPCW, TPCE of Figure 2*), wherein in response to a detection of loss of signal in said at least one forward channel, traffic designated to be transmitted along said at least one forward channel is diverted to said at least one protection link at each of the first and second locations (*e.g., col./line: 2/25-45*)

Re claim 8,

An optical communication system further comprising means adapted to monitor the operability of the protection link during normal operation mode of the system (*204, 205 of Figure 2, e.g., col./line: 4/63-67; 5/1-5*).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Al-Salameh US 6,262,820 B1 (Al-Salameh).

Re claim 1,

A method for diverting communication traffic in an optical communication network which comprises first optical transmission (*TSCW, TSCE of Figure 2*) and reception links (*RSCW, RSCE of Figure 2*) extending between a first location (*e.g., 1101 of Figure 11*) and a second location (*e.g., 1104 of*

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Figure 11) and carrying traffic in normal operation mode between the first location and the second location, and second transmission (*TPCW, TPCE of Figure 2*) and reception links (*RPCW, RPCE of Figure 2*) adapted to carry traffic diverted from the first optical transmission and reception links in the event of a fault in at least one of the first optical transmission link and the first optical reception link, which method comprises the steps of:

determining whether an energy received over a first optical link at the second location exceeds a pre-defined threshold (e.g., *col./line: 11/20-30*); in the case that the energy thus received does not exceed the pre-defined threshold, diverting the traffic transmission and reception at the second location to the corresponding second links (e.g., *col./line: 2/25-45*);

determining whether a energy received via a first optical link at the first location exceeds a predefined threshold (e.g., *col./line: 11/20-30*); and in the case that the energy thus received at the first location does not exceed the pre-defined threshold, diverting the traffic transmission and reception at the first location to the corresponding second links (e.g., *col./line: 2/25-45*).

Al-Salameh does not disclose that the energy received is a total of the energy received at either the first or second location. Rather Al-Salameh monitors a "small portion of optical energy (for example, less than 2%)", see *col./line: 4/63-65*. It would have been obvious to one of ordinary skill in the art at the time of invention to measure the total energy received rather than a portion (2%) of the total energy. One would be motivated as such since a loss of power can be determined by a proportion of the original signal just as well as from the original signal thereby obviating the need to terminate the signal for detection.

Re claim 10,

A method further comprising monitoring the operability of the protection link when said protection link is not used for transmission of traffic during normal operation mode (*204, 205 of Figure 2, e.g., col./line: 4/63-67; 5/1-5*).

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Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

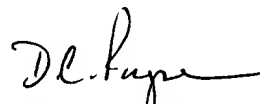
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C. Payne whose telephone number is (571) 272-3024. The examiner can normally be reached on M-F, 7a-4p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dcp


David C. Payne
Patent Examiner
AU 2638